

Remarks

Applicant notes with appreciation the allowance of claims 9-11, 22, 23, 32, 33 and 35-39.

In paragraph 15 of the second Office Action, the Examiner has objected to claims 4-6, 13, 17-19, 25 and 28-30 but has indicated these claims would be allowable if rewritten in independent form. Accordingly, claim 4 has been cancelled and resubmitted in independent form as new claim 40. Claims 5 and 6 have been amended to depend from new claim 40. Claim 13 has been cancelled and resubmitted in independent form as new claim 41. Claim 17 has been cancelled and resubmitted in independent form as new claim 42. Claims 18 and 19 have been amended to depend from new claim 42. Claim 25 has been cancelled and resubmitted in independent form as new claim 43. Claim 28 has been cancelled and resubmitted in independent form as new claim 44. Claims 29 and 30 have been amended to depend from new claim 44. Therefore, claims 5, 6, 18, 19, 29, 30 and 40-44 should now be allowable.

In paragraph 2 of the second Office Action, the Examiner has rejected claims 1-3, 14-16, 26 and 27 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,376,084 to McKee. The Examiner states:

McKee discloses a seal for use adjacent to a rotating surface (12) comprising a ring (56) having a sealing surface (68) sealing between a portion of the stationary surface (48) and the sealing surface. The ring (56) is spaced from the rotating surface and has a race engagement surface (72) separate from the sealing surface. McKee also discloses a first race (16), a second race (38 or 40), and a plurality of bearing elements (34). While McKee describes features 56 and 58 as being cushioning elements, examiner notes this structure inherently provides a sealing function. For this reason, examiner considers 56 and 58 to be seals.

The Examiner's comments about claim 14 in paragraph 6 of the Office Action are similar.

In paragraph 3 of the Office Action, the Examiner also states:

With respect to claims 2 and 3, McKee discloses a bearing cage (36) disposed between first and second races, defining bearing openings. The bearing elements (34) are disposed in the openings. McKee also discloses the sealing surface (68) to be an outer peripheral surface of the ring.

The Examiner's comments about claims 15 and 16 in paragraph 7 of the Office Action are similar.

While Applicant respectfully disagrees with the Examiner's rejection of claims 1-3 and 14-16, it is believed that the rejection is moot in view of the amendments made herein to claims 1 and 14. These claims have been amended to include the limitation of a metal-to-metal seal between the ring and the stationary surface of claim 1 and between the ring and the housing sealing surface of claim 14.

McKee does not have this metal-to-metal feature, and in fact cannot have it because, as the Examiner has noted, elements 56 and 58 are cushioning elements which are a major aspect of McKee's apparatus. Therefore, claims 1-3 and 14-16 should be allowable.

With regard to claim 26, the Examiner states in paragraph 10 of the Office Action:

McKee discloses a seal (56) for use adjacent to a rotating race engagement surface (12) and stationary race engagement surface (46). McKee discloses a first race (16) adapted for engagement with the rotating race engagement surface (of 12), the first race (16) defining inner and outer annular portions (axial ends of 16). McKee also discloses a second race (38 or 40) adapted for engagement with the stationary race engagement surface (46) and being disposed between the annular portions of the first race. There is a plurality of bearing elements (34) disposed between the first and second races.

And in paragraph 11 of the Office Action, the Examiner adds:

With respect to claim 27, McKee discloses a bearing cage (36) disposed between first and second races, defining bearing openings. The bearing elements (34) are disposed in the bearing openings.

Although the axial ends of first race 16 in McKee might be described as annular, neither can be described as "outer" or "inner" annular portions as stated in claim 26. Also, while it might be said that the second race 38 or 40 is between these axial ends of first race 16 in a longitudinal sense, this again is not the same as Applicant's invention wherein the second race is claimed to be between outer and inner annular portions, nor is it what Applicant intended to claim. In the present invention the outer and inner annular portions of the first race are concentric which is clearly not the case with the axial ends of first race 16 in McKee. Claim 26 has been amended to add the limitation of the outer and inner annular portions being concentric. In view of this amendment, it is believed that the rejection of claims 26 and 27 based on McKee should be withdrawn.

In paragraph 13 of the Office Action, the Examiner has rejected claims 12, 24 and 34 under 35 U.S.C. §103(a) as being unpatentable over McKee in view of U.S. Patent No. 5,425,584 to Ide, noting that McKee discloses a ball bearing, not a roller bearing, and stating in paragraph 14:

Ide teaches a bearing assembly that uses conventional rolling element bearing components and rolling elements, such as ball or rollers ..., thereby establishing ball bearing and roller bearing as an art recognized equivalent, as either can be used and still allow for proper functioning of the machine they are used in. It would have been obvious to one having ordinary skill in the art at the time of the invention to use either ball or roller bearings in McKee, as taught by Ide, as they are equivalent in the art.

Applicant respectfully traverses this rejection for the following reasons.

First of all, the comments and arguments presented herein concerning amended claims 1, 14 and 26 are applicable to claims 12, 24 and 34, and the claims should be allowed for these reasons alone.

Further, Applicant respectfully submits that bearing and roller bearings are not equivalent. While that may be true for the specific case in Ide, it certainly does not mean that ball and roller bearings would be interchangeable in the dental handpiece of McKee, much less in all cases. A roller bearing can withstand no axial loading on the rotating member in the center, and in a dental tool like that of McKee which can be used for drilling, axial loading appears unavoidable. Axial loading on shaft 16 would appear to drive it into end cap 52, clearly an undesirable result. Therefore, it could not be obvious to use a roller bearing in the McKee device. Thus, any modification of McKee to include the roller bearings of Ide would likely be inoperable and therefore cannot be used as a basis for rejecting claims 12, 24 and 34 of the present invention.

Summary

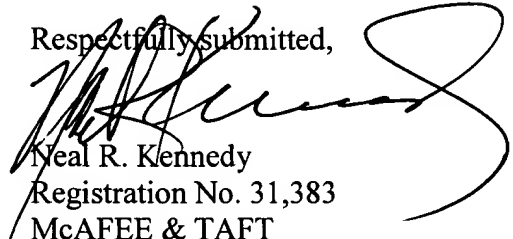
The specification has been amended to correct a typographical error.

Claims 9-11, 22, 23, 32, 33 and 35-39 have been allowed.

Claims 4, 13, 17, 25 and 28 have been cancelled and resubmitted in independent form as new claims 40, 41, 42, 43 and 44, respectively, which should now be allowable. Claims 5 and 6 have been amended to depend from claim 40, claims 18 and 19 have been amended to depend from claim 42, and claims 29 and 30 have been amended to depend from claim 44. Thus, claims 5, 6, 18, 19, 29 and 30 should also be allowable.

Claims 1, 14 and 26 have been amended. In view of these amendments and the arguments presented, it is believed that the remaining claims are patentably distinguishable over the prior art of record and should be allowed.

Respectfully submitted,



Neal R. Kennedy

Registration No. 31,383

McAFEE & TAFT

Tenth Floor, Two Leadership Square

211 North Robinson

Oklahoma City, Oklahoma 73102

Telephone: (405) 552-2304

FAX No.: (405) 235-0439

E-Mail: nick.kennedy@mcafeetaft.com

Attorney for Applicant